

1 **In the Claims**

2 Claim 48 is currently amended.

3 Claim 49 is cancelled without prejudice.

4 Claims 1-48 and 50-60 remain in the application and are listed below.

5
6 **CLAIMS**

- 7 1. (Original) A system comprising:
- 8 a stage assembly comprising a plurality of stages configured to receive data
- 9 that is to be processed by a rasterization pipeline;
- 10 an arbitrary ordering component operably associated with the stage
- 11 assembly;
- 12 a rasterization pipeline comprising a plurality of components configured to
- 13 process data from the stage assembly; and
- 14 the arbitrary ordering component being configured to enable an arbitrary
- 15 order of components of the rasterization pipeline to be specified for processing
- 16 data from the stage assembly.
- 17
- 18 2. (Original) The system of claim 1, wherein the data comprises pixel
- 19 data.
- 20
- 21 3. (Original) The system of claim 1, wherein the rasterization pipeline
- 22 comprises at least one alpha blending component, and the arbitrary ordering
- 23 component is configured to enable the alpha blending component to process the
- 24 data before another component of the rasterization pipeline.
- 25

1 4. (Original) The system of claim 1, wherein at least some of the stages
2 have an output line that can route data to a next stage and to the arbitrary ordering
3 component.

4
5 5. (Original) The system of claim 1, wherein at least some of the stages
6 have an input line that can receive data from a previous stage, or from the arbitrary
7 ordering component.

8
9 6. (Original) The system of claim 1, wherein at least some of the stages
10 have (a) an output line that can route data to a next stage and to the arbitrary
11 ordering component, and (b) an input line that can receive data from a previous
12 stage, or from the arbitrary ordering component.

13
14 7. (Original) A computing system comprising:
15 one or more processors;
16 one or more computer-readable media for holding computer-readable
17 instructions that are executable on the one or more processors;
18 a graphics subsystem operably coupled with the one or more processors and
19 comprising:

20 a stage assembly comprising a plurality of stages configured to
21 receive data that is to be processed by a rasterization pipeline;

22 an arbitrary ordering component operably associated with the stage
23 assembly;

24 a rasterization pipeline comprising a plurality of components
25 configured to process data from the stage assembly; and

1 the arbitrary ordering component being configured to enable an
2 arbitrary order of components of the rasterization pipeline to be specified
3 for processing data from the stage assembly.
4

5 8. (Original) The system of claim 7, wherein the data comprises pixel
6 data.
7

8 9. (Original) The system of claim 7, wherein the rasterization pipeline
9 comprises at least one alpha blending component, and the arbitrary ordering
10 component is configured to enable the alpha blending component to process the
11 data before another component of the rasterization pipeline.
12

13 10. (Original) The system of claim 7, wherein at least some of the stages
14 have an output line that can route data to a next stage and to the arbitrary ordering
15 component.
16

17 11. (Original) The system of claim 7, wherein at least some of the stages
18 have an input line that can receive data from a previous stage, or from the arbitrary
19 ordering component.
20

21 12. (Original) The system of claim 7, wherein at least some of the stages
22 have (a) an output line that can route data to a next stage and to the arbitrary
23 ordering component, and (b) an input line that can receive data from a previous
24 stage, or from the arbitrary ordering component.
25

1 13. (Original) The system of claim 7, wherein the rasterization pipeline
2 comprises components selected from a group of components comprising: at least
3 one fog component, at least one alpha blending component, and at least one
4 texture component.

5
6 14. (Original) The system of claim 7, wherein the rasterization pipeline
7 comprises components selected from a group of components comprising: at least
8 one fog component, at least one alpha blending component, at least one specular
9 component and at least one texture component.

10
11 15. (Original) A system comprising:
12 a stage assembly comprising a plurality of stages configured to receive data
13 that is to be processed by a rasterization pipeline;
14 an arbitrary ordering component operably associated with the stage
15 assembly;
16 a rasterization pipeline comprising a plurality of components configured to
17 process data from the stage assembly, said plurality of components comprising at
18 least one fog component, at least one alpha blending component, and at least one
19 texture component; and
20 the arbitrary ordering component being configured to enable an arbitrary
21 order of components of the rasterization pipeline to be specified for processing
22 data from the stage assembly such that the alpha blending component need not be
23 the last component of the rasterization pipeline to process the data.
24
25

1 16. (Original) The system of claim 15, wherein the arbitrary ordering
2 component is programmable.

3
4 17. (Original) The system of claim 15, wherein the arbitrary ordering
5 component comprises an assembly of multiplexers interposed between the stage
6 assembly and the rasterization pipeline.

7
8 18. (Original) The system of claim 15, wherein the data comprises pixel
9 data.

10
11 19. (Original) The system of claim 15, wherein at least some of the
12 stages have an output line that can route data to a next stage and to the arbitrary
13 ordering component.

14
15 20. (Original) The system of claim 15, wherein at least some of the
16 stages have an input line that can receive data from a previous stage, or from the
17 arbitrary ordering component.

18
19 21. (Original) The system of claim 15, wherein at least some of the
20 stages have (a) an output line that can route data to a next stage and to the arbitrary
21 ordering component, and (b) an input line that can receive data from a previous
22 stage, or from the arbitrary ordering component.

23
24 22. (Original) A computer system embodying the system of claim 15.
25

1 23. (Original) A three-dimensional, computer graphics system
2 comprising a rasterization pipeline having multiple components, and means for
3 routing pixel data to individual components of the rasterization pipeline in no
4 particular fixed order.

5
6 24. (Original) The system of claim 23, wherein the multiple components
7 comprise at least a fog component.

8
9 25. (Original) The system of claim 23, wherein the multiple components
10 comprise at least an alpha blending component.

11
12 26. (Original) The system of claim 23, wherein the multiple components
13 comprise at least a texture component.

14
15 27. (Original) The system of claim 23, wherein the multiple components
16 comprise at least a fog component and at least a texture component.

17
18 28. (Original) The system of claim 23, wherein the multiple components
19 comprise at least a fog component and at least an alpha blending component.

20
21 29. (Original) The system of claim 23, wherein the multiple components
22 comprise at least a specular component.

1 30. (Original) The system of claim 23, wherein the multiple components
2 comprise at least a specular component and an alpha blending component.

3
4 31. (Original) A three-dimensional, computer graphics system
5 comprising a rasterization pipeline having multiple components, and multiple
6 multiplexers for arbitrarily routing pixel data to individual components of the
7 rasterization pipeline.

8
9 32. (Original) A system comprising:
10 a stage assembly comprising a plurality of stages configured to receive data
11 that is to be processed by a rasterization pipeline;
12 an arbitrary ordering component operably associated with the stage
13 assembly, the arbitrary ordering component comprising a first group of
14 multiplexers and a second group of multiplexers;
15 a rasterization pipeline comprising a plurality of components configured to
16 process data from the stage assembly;
17 the first group of multiplexers having individual inputs received from the
18 stage assembly and individual outputs provided to the rasterization pipeline; and
19 the second group of multiplexers having individual inputs received from the
20 rasterization pipeline and individual outputs provided to the stage assembly.

21
22 33. (Original) The system of claim 32, wherein each individual
23 component of the rasterization pipeline has an associated first group multiplexer
24 from which it receives an input.

1 34. (Original) The system of claim 32, wherein each individual input of
2 a multiplexer of the second group is associated with a different component of the
3 rasterization pipeline.

4
5 35. (Original) The system of claim 32, wherein each individual
6 component of the rasterization pipeline has an associated first group multiplexer
7 from which it receives an input, and each individual input of a multiplexer of the
8 second group is associated with a different component of the rasterization pipeline.

9
10 36. (Original) The system of claim 32, wherein the data comprises pixel
11 data.

12
13 37. (Original) The system of claim 32, wherein the rasterization pipeline
14 comprises at least one alpha blending component, and the arbitrary ordering
15 component is configured to enable the alpha blending component to process the
16 data before at least one other component of the rasterization pipeline.

17
18 38. (Original) The system of claim 32, wherein at least some of the
19 stages have an output line that can route data to a next stage and to the
20 multiplexers of the first group of multiplexers.

21
22 39. (Original) The system of claim 32, wherein at least some of the
23 stages have an input line that can receive data from a previous stage, or from a
24 multiplexer of the second group of multiplexers.
25

1 40. (Original) A computer system comprising:
2 one or more processors;
3 one or more computer-readable media for holding computer-readable
4 instructions that are executable on the one or more processors;
5 a graphics subsystem operably coupled with the one or more processors and
6 comprising:
7 a stage assembly comprising a plurality of stages configured to
8 receive data that is to be processed by a rasterization pipeline;
9 an arbitrary ordering component operably associated with the stage
10 assembly, the arbitrary ordering component comprising a first group of
11 multiplexers and a second group of multiplexers;
12 a rasterization pipeline comprising a plurality of components
13 configured to process data from the stage assembly;
14 the first group of multiplexers having individual inputs received
15 from the stage assembly and individual outputs provided to the rasterization
16 pipeline; and
17 the second group of multiplexers having individual inputs received
18 from the rasterization pipeline and individual outputs provided to the stage
19 assembly.

20
21 41. (Original) The computer system of claim 40, wherein each
22 individual component of the rasterization pipeline has an associated first group
23 multiplexer from which it receives an input.
24
25

1 42. (Original) The computer system of claim 40, wherein each
2 individual input of a multiplexer of the second group is associated with a different
3 component of the rasterization pipeline.
4

5 43. (Original) The computer system of claim 40, wherein each
6 individual component of the rasterization pipeline has an associated first group
7 multiplexer from which it receives an input, and each individual input of a
8 multiplexer of the second group is associated with a different component of the
9 rasterization pipeline.
10

11 44. (Original) The computer system of claim 40, wherein the data
12 comprises pixel data.
13

14 45. (Original) The computer system of claim 40, wherein the
15 rasterization pipeline comprises at least one alpha blending component, and the
16 arbitrary ordering component is configured to enable the alpha blending
17 component to process the data before at least one other component of the
18 rasterization pipeline.
19

20 46. (Original) The computer system of claim 40, wherein at least some
21 of the stages have an output line that can route data to a next stage and to the
22 multiplexers of the first group of multiplexers.
23
24
25

1 47. (Original) The computer system of claim 40, wherein at least some
2 of the stages have an input line that can receive data from a previous stage, or
3 from a multiplexer of the second group of multiplexers.

4
5 48. (Currently Amended) A method comprising:
6 receiving pixel data that is to be processed by a rasterization pipeline
7 having a plurality of components; ~~and~~
8 routing the pixel data, using an arbitrary ordering component, to one of a
9 plurality of rasterization pipeline components, wherein said routing can comprise
10 routing the pixel data to an alpha blending component prior to routing the pixel
11 data to another component of the rasterization pipeline; and
12 routing resultant data, using the arbitrary ordering component, back to a
13 stage assembly comprising a plurality of stages that are configured to receive pixel
14 data.

15
16 49. (Cancelled)

17
18 50. (Original) The method of claim 48 further comprising routing
19 resultant data, using the arbitrary ordering component, back to a stage assembly
20 comprising a plurality of stages that are configured to receive pixel data, and
21 wherein said routing of the resultant pixel data comprises selecting at least one
22 multiplexer sufficient to route the pixel data to the stage assembly.

1 51. (Original) The method of claim 48, wherein the rasterization
2 pipeline comprises components selected from a group of components comprising a
3 texture component and a fog component.

4
5 52. (Original) The method of claim 48, wherein said routing comprises
6 selecting at least one multiplexer sufficient to route the pixel data to a rasterization
7 pipeline component.

8
9 53. (Original) A method comprising:
10 receiving, in a stage assembly, pixel data that is to be processed by a
11 rasterization pipeline having a plurality of components comprising at least a
12 texture component, a fog component and an alpha blending component;

13 selecting a first multiplexer, whose inputs are received from different stages
14 of the stage assembly, sufficient to route the pixel data to one of the components
15 of the rasterization pipeline;

16 processing the pixel data with the component to provide resultant pixel
17 data; and

18 selecting a second multiplexer, whose inputs are received from different
19 components of the rasterization pipeline, sufficient to route the resultant pixel data
20 to the stage assembly.

21
22 54. (Original) The method of claim 53, wherein said act of selecting the
23 first multiplexer can be performed such that the alpha blending component is not
24 the last component in the rasterization pipeline to process the pixel data.

1 55. (Original) The method of claim 53, wherein the first multiplexer
2 comprises one multiplexer of a first group of multiplexers, and the second
3 multiplexer comprises one multiplexer of a second group of multiplexers, each
4 individual multiplexer of the first group having an output that is associated with a
5 respective one of the components of the rasterization pipeline, each individual
6 multiplexer of the second group having an output that is associated with a different
7 respective stage of the stage assembly.

8
9 56. (Original) A method comprising:
10 associating a stage assembly with an arbitrary ordering component, the
11 stage assembly comprising a plurality of stages configured to receive data that is
12 to be processed by a rasterization pipeline, the arbitrary ordering component being
13 configured to enable an arbitrary order of components of the rasterization pipeline
14 to be specified for processing data from the stage assembly; and
15 associating a rasterization pipeline with the arbitrary ordering component,
16 the rasterization pipeline comprising a plurality of components configured to
17 process data from the stage assembly.

18
19 57. (Original) The method of claim 56, wherein the act of associating
20 the stage assembly comprises associating the stage assembly with a rasterization
21 pipeline comprising at least one alpha blending component, the arbitrary ordering
22 component being configured to enable the alpha blending component to process
23 the data before another component of the rasterization pipeline.

1 58. (Original) The method of claim 56, wherein the act of associating
2 the stage assembly comprises associating the stage assembly with a rasterization
3 pipeline comprising at least one fog component, at least one alpha blending
4 component, and at least one texture component, the arbitrary ordering component
5 being configured to enable the alpha blending component to process the data
6 before another component of the rasterization pipeline.

7
8 59. (Original) The method of claim 56, wherein the act of associating
9 the stage assembly comprises associating the stage assembly with a rasterization
10 pipeline comprising at least one fog component, at least one alpha blending
11 component, at least one texture component, and at least one specular component,
12 the arbitrary ordering component being configured to enable the alpha blending
13 component to process the data before another component of the rasterization
14 pipeline.

15
16 60. (Original) The method of claim 56, wherein the acts of associating
17 are performed by operably connecting a plurality of multiplexers between the
18 stage assembly and rasterization pipeline, wherein at least some of the
19 multiplexers route pixel data from the stage assembly to the rasterization pipeline,
20 and at least other of the multiplexers route resultant pixel data from the
21 rasterization pipeline to the stage assembly.